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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,420	GOTO, YOSHIHIRO	
	Examiner	Art Unit	
	Jason Heidemann	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _05 August 2009_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 June 2006_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _10/07/2009_.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant filed Amendment on 08/05/2009 amending Claims 1, 6, 7, 14, 15, 17, and 19. Currently, Claims 1 - 20 are pending.

2. Regarding Claim 19, the claim is in an apparatus claim format but there is a limitation stated in the claim, “means for”, that tie these methods to a machine by 112 paragraph 6. Therefore this claim is statutory.

Priority

This application claims Foreign Priority to JP2003-417842, filed 12/16/2003. The certified copy of the foreign application was received on 06/14/2006. There is no request for English translation at this time.

Response to Amendment

The amendment received 08/05/2009 has been entered in full.

Response to Arguments

Applicant's arguments, see page 5, filed 08/05/2009 with respect to art rejections to all the pending have been considered but are moot in view of the new ground(s) of rejection due to the amendments filed by the Applicant(s).

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-13, and 14-15 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Claims 1-13, and 14-15 do not require implementation by a particular machine and do not provided a transformation of a particular object to different state or thing. Supreme Court precedent[1] and recent

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

Federal Circuit decisions[2] indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the “machine or transformation test”, whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590”). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor positively tie to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

While the claims recite the segmenting a region in a image these steps are not recited as being machine implemented, and could be calculated by hand and, in addition, the segmentation is not created by a transformation. Therefore the claim does not recite a qualifying transformation or positively tie to a particular machine (refer to *In re Bilski*).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. Claims 1/1, 2-4, and 8/1-14/1 are rejected under 35 U.S.C. 102(b) as being anticipated by Hata el al. (U.S. Patent# 4,805,127, hereinafter Hata). Hata was disclosed in an IDS provide from applicant on 06/14/2006.

As to Claim 1/1, Hata teaches a region extraction method for extracting a specified region in an image (**Hata, Fig.19**), the method including:

(a) a step for displaying the image (**Hata, Col. 11, Lines 25-45, the displaying of the image data on a CTR display**);

(b) a step for selecting a desired region in the image (**Hata, Col. 11, Lines 22-53, teaches selection of regions based on color (homogeneous regions)**);

(c) a step for selecting an element graphic corresponding to at least a partial contour of a partial region in the desired region (**Hata, Col. 11, Lines 25-53, selects a element graphic (linear or curve) primitive to describe the boundary point rows of the region, in a combination a single graphic primitive would be approximating a partial boundary point rows (contour)**);

(d) a step for approximating at least a partial contour of the selected element graphic to at least said partial contour of the partial region (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-53, teaches approximating boundary point rows (contours) of graphic primitives, where multiple graphic primitives might be combined, hence in a combination a single graphic primitive would be approximating a partial boundary point rows (contour)**)

(e) a step for repeating the steps (c) to (d) at least twice, so that at least two selected element graphics overlap with each other (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, teaches using a combination of graphic primitives to approximate boundary point rows (contours)**; and

(f) a step for making a first contour by combining at least said partial contour of the respective element graphics after the approximation (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, teaches using a combination of graphic primitives to approximate boundary point rows (contours)**).

As to Claim 2, Hata teaches the region extraction method according to claim 1, wherein the step (c) is for selecting the element graphics passing through a plurality of points being placed on at least a partial contour of the partial region or the vicinity of them (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-53, teaches approximating boundary point rows (contours) of graphic primitives, where multiple graphic primitives might be combined, hence in a combination a single graphic primitive would be approximating a partial boundary point rows (contour)**).

As to Claim 3, Hata teaches the region extraction method according to claim 1, wherein the step (c) is for selecting the element graphics passing through one or more curves being placed on at least a partial contour of the partial region or the vicinity of them (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-53, teaches approximating boundary point rows (contours) of graphic primitives, where multiple graphic primitives might be combined, hence in a combination a single graphic primitive would be approximating a partial boundary point rows (contour)**).

As to Claim 4, Hata teaches the region extraction method according to claim 1, wherein at least either size or shape of two or more of the plurality of element graphics is different from one another (**Hata, Fig. 26 (a), Fig. 26(c), Col. 14, Lines 54-65, the region B1 is described by two element graphics, a polygonal shape and circular arc**).

As to Claim 8/1, Hata teaches the region extraction method according to claim 1, wherein the step (c) is for displaying the element graphic with the image, and step (d) is for implementing the approximation of the displayed element graphics on the image (**Hata, Fig. 27(a), Fig. 27 (b), Col. 11, Lines 25-45, Col. 11, Lines 25-45, the displaying of the image data on a CTR display with the combination of graphic primitives that approximate the boundary (contour)**),

As to Claim 9/1, Hata teaches the region extraction method according to claim 1, wherein the following steps are included between the step (b) and the step (c):

(g) a step for displaying at least one patterned graphic formed by a plurality of element graphics being combined (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, teaches using a combination of graphic primitives to approximate boundary point rows (contours)**);

(h) a step for selecting the one patterned graphic corresponding to the desired region (**Hata, Col. 11, Lines 22-53, teaches selection of regions based on color (homogeneous regions)**);

(i) a step for displaying at least one of the plurality of element graphics configuring the selected patterned graphic along with the image (**Hata, Fig. 27(a), Fig. 27 (b), Col. 11, Lines 25-45, the displaying of the image data on a CTR display with the combination of graphic primitives that approximate the boundary (contour)**), and in the step

(c), the selection of an element graphic from the displayed element graphics is implemented (**Hata, Col. 11, Lines 25-53, selects a element graphic (linear or curve) primitive to describe the boundary point rows of the region**).

As to Claim 10/1, Hata teaches the region extraction method according to claim 1, wherein the following steps are included after the step (f): (j) a step for obtaining a second contour based on the first contour (**Hata, Fig.26 (a), Fig.26 (c), for example,**

circular arc (first contour), polygonal shape (second) contour is based on the first contour); and (k) a step for extracting the region including a stratified region held between the first contour and the second contour (**Hata, Fig.26 (a), Fig.26 (c), for example, the combination of the circular arc (first contour) and polygonal shape (second) contour describes the separated (stratified) region B1**).

As to Claim 11/1, Hata teaches the region extraction method according to claim 10, wherein the step (j) is for obtaining the second contour by enlarging or reducing the first contour with a predetermined magnification (**Hata, demonstrated this ability in Fig.28 (b), where the polygonal shape (first contour) A3 and polygonal shape (second) B3 is just reduced**).

As to Claim 12/1, Hata teaches the region extraction method according to claim 10, wherein the step (j) is for obtaining the second contour by changing a position, size or shape of the element graphics that are used upon obtaining the first contour in the step (f) (**Hata, demonstrated this ability in Fig.28 (b), where the polygonal shape (first contour) A3 and polygonal shape (second) B3 is just reduced, and additionally changing the shape as demonstrated in Fig. 26 (a), Fig. 26(c), Col. 14, Lines 54-65, the region B1 is described by two element graphics, a polygonal shape and circular arc**).

As to Claim 13, Hata teaches the region extraction method according to claim 10, wherein the step (k) is for extracting one of only the stratified regions, a region on the side of the first contour including the stratified region or a region on the side of the second contour including the stratified region (**Hata, Fig.26 (a), Fig.26 (c), for example, the combination of the circular arc (first contour) and polygonal shape (second) contour describes the extracted separated (stratified) region B1**)..

As to Claim 14/1, Hata teaches a region extraction method for extracting a specified region in an image, the method including:

(l) a step for displaying the image (**Hata, Col. 11, Lines 25-45, the displaying of the image data on a CTR display**);

(m) a step :for selecting a desired region in the image (**Hata, Col. 11, Lines 22-53, teaches selection of regions based on color (homogeneous regions)**);

(u) a step for extracting a plurality of partial regions from the desired region (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, Fig. 26 (a), Fig. 26(c), Col. 14, Lines 54-65, the region B1 has two extracted element graphics, a polygonal shape and circular arc**);

(o) a step for combining the plural partial regions and synthesizing at least parts of the desired region (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, Col. 15, Lines 25-50, Fig. 29(a), Fig. 29(b), Fig. Fig. 29(c), Fig. 30(a), Fig. 30 (b), teaches using a synthesizing graphic primitives to approximate boundary point rows (contours)**); and

(p) a step for making at least a partial contour of the synthesized region as a first contour (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, Col. 15, Lines 25-50, Fig. 29(a), Fig. 29(b), Fig. Fig. 29(c), Fig. 30(a), Fig. 30 (b), creates a new polygon based on the synthesizing of the graphic primitives)**.

As to Claim 15, Hata teaches the region extraction method according to claim 14, wherein the following steps are included after the step (p): (q) a step for enlarging or reducing one or more partial regions with a predetermined magnification (**Hata, demonstrated this ability in Fig.28 (b), where the polygonal shape (first contour) A3 and polygonal shape (second) B3 is just reduced**);(r) a step for combing the one or more enlarged or reduced partial regions, and synthesizing at least a pat of a desired region being enlarged or reduced; (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, Col. 15, Lines 25-50, Fig. 29(a), Fig. 29(b), Fig. Fig. 29(c), Fig. 30(a), Fig. 30 (b), creates a new polygon based on the synthesizing of the graphic primitives, and Fig.28 (b), where the polygonal shape (first contour) A3 and polygonal shape (second) B3 is just reduced, and additionally changing the shape as demonstrated in Fig. 26 (a), Fig. 26(c), Col. 14, Lines 54-65, the region B1 is described by two element graphics, a polygonal shape and circular arc**);
(s) a step for making at least a partial contour of at least a part of the enlarged or reduced desired region as a second contour; region (**Hata, Column 10, Lines 53-68, Col. 11, Lines 25-45, Col. 15, Lines 25-50, Fig. 29(a), Fig. 29(b), Fig. Fig. 29(c), Fig. 30(a), Fig. 30 (b), teaches using a synthesizing graphic primitives to approximate**

boundary point rows (contours) and Fig.28 (b), where the polygonal shape (first contour) A3 and polygonal shape (second) B3 is just reduced, and additionally changing the shape as demonstrated in Fig. 26 (a), Fig. 26(c), Col. 14, Lines 54-65, the region B1 is described by two element graphics, a polygonal shape and circular arc));

(t) a step for extracting a region including at least a stratified region being held between the first contour and the second contour. (**Hata, Fig.26 (a), Fig.26 (c), for example, the combination of the circular arc (first contour) and polygonal shape (second) contour describes the extracted separated (stratified) region B1**).

With respect to Claim 19/1 and 20/1, they include essentially the same limitations as Claims 1/1 and Claims 10/1, respectively as addressed above. With the expectation of a device, however, Hata further teaches a device for processing the method as recited in Claims 1/1 and Claims 10/1, respectively (**Hata, Fig.17**)

B. Claims 1/2, 8/2-12/2, 14/2 and15/2 are further rejected and Claims 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Staib et al. (Parametrically Deformable Contour Models, IEEE Computer Society Conference on Computer Vision and Pattern Recognition. San Diego, 1989, pp. 427–430 hereinafter Staib)

As to Claim 1/2, Staib teaches a region extraction method for extracting a specified region in an image (**Staib, Abstract**), the method including:

(a) a step for displaying the image (**Staib, Fig. 3, displays the initial image along with several processing steps, including the final segmented object**);

(b) a step for selecting a desired region in the image (**Staib, page 101, left Column, section 5: Results, Paragraph 2, teaches choosing the objects based on there contrast (intensity)**);

(c) a step for selecting an element graphic corresponding to at least a partial contour of a partial region in the desired region (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, teaches the use of ellipses to approximate the contour using multiple ellipses)**);

(d) a step for approximating at least a partial contour of the selected element graphic to at least said partial contour of the partial region (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition, the ellipses approximate portions of the contour as displayed in Figure 1**);

(e) a step for repeating the steps (c) to (d) at least twice, so that at least two selected element graphics overlap with each other (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, the combination of ellipses are used to approximate the entire boundary of the region, Figure 3**

shows how the ellipses in combination (overlap) define the entire contour of the region); and

(f) a step for making a first contour by combining at least said partial contour of the respective element graphics after the approximation (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 shows how the ellipses in combination (overlap) define the entire contour of the region).**

As to Claim 5, Staib teaches the region extraction method according to claim 1, characterized in that a shape of the element graphic is an ellipse (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3)**.

As to Claim 6, Staib teaches the region extraction method according to claim 5, wherein the approximation is performed in step (d) by changing the position, size or shape of the ellipse by moving the major axis point, minor axis point or center point or the ellipses or rotating the ellipses around the center point (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, describes how the shape, and translation (movement of the center point), rotating can be changed)**.

As to Claim 7, Staib teaches the region extraction method according t€i claim 5, wherein the approximation is performed in step (d) by mutually interlocking at least two ellipses (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2,**

Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, and Figure 3 shows how the ellipses in combination (interlocking) define the entire contour of the region).

As to Claim 8/2, Staib teaches the region extraction method according to claim 1, wherein the step (c) is for displaying the element graphic with the image, and step (d) is for implementing the approximation of the displayed element graphics on the image ((**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 displays the final approximation where the ellipses (element graphic) in combination define the entire contour of the region)**.

As to Claim 9/2, Staib teaches the region extraction method according to claim 1, wherein the following steps are included between the step (b) and the step (c):

(g) a step for displaying at least one patterned graphic formed by a plurality of element graphics being combined (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, and Figure 3 shows how the ellipses in combination (interlocking) define the entire contour of the region)**;

(h) a step for selecting the one patterned graphic corresponding to the desired region (**Staib, page 101, left Column, section 5: Results, Paragraph 2, teaches choosing the objects based on there contrast (intensity)**);

(i) a step for displaying at least one of the plurality of element graphics configuring the selected patterned graphic along with the image (**Staib, Fig. 3, displays the initial image along with several processing steps, including the final segmented object**); and in the step

(c), the selection of an element graphic from the displayed element graphics is implemented (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition, so varying shapes and sizes of ellipses are used to approximate the boundary**).

As to Claim 10/2, Staib teaches the region extraction method according to claim 1, wherein the following steps are included after the step (f): (j) a step for obtaining a second contour based on the first (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition as described in Section 3, the combination of ellipses are used to approximate the entire boundary of the region, Figure 3 shows how the ellipses in combination (overlap) define the entire contour of the region)**;and (k) a step for extracting the region including a stratified region held between the first contour and the second contour (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 shows how the ellipses in combination (overlap) define the stratified region)**;

As to Claim 11/2, Staib teaches the region extraction method according to claim 10, wherein the step (j) is for obtaining the second contour by enlarging or reducing the first contour with a predetermined magnification (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, describes how the shape, and translation (movement of the center point), rotating can be changed, where Figure 1, shows the changing in magnification)**.

As to Claim 12/2, Staib teaches the region extraction method according to claim 10, wherein the step (j) is for obtaining the second contour by changing a position, size or shape of the element graphics that are used upon obtaining the first contour in the step (f) (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, describes how the shape, and translation (movement of the center point), rotating can be changed, where Figure 1, shows the changing in magnification)**.

As to Claim 14/2, Staib teaches a region extraction method for extracting a specified region in an image, the method (**Staib, Abstract)**, including:

(l) a step for displaying the image (**Staib, Fig. 3, displays the initial image along with several processing steps, including the final segmented object)**;

(m) a step :for selecting a desired region in the image (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, teaches the use of ellipses to approximate the contour using multiple ellipses))**;

(u) a step for extracting a plurality of partial regions from the desired region (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, approximates the contour using elliptic Fourier decomposition, the ellipses (plurality of partial regions) approximate portions of the contour as displayed in Figure 1)**;

(o) a step for combining the plural partial regions and synthesizing at least parts of the desired region (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 shows how the ellipses in combination (overlap) define the entire contour (synthesized into one approximate contour) of the region)**; and

(p) a step for making at least a partial contour of the synthesized region as a first contour (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3, each ellipse is a partial contour, and is combined with other ellipses to define the entire contour (synthesized into one approximate contour) of the region)**.

As to Claim 15/2, Staib teaches the region extraction method according to claim 14, wherein the following steps are included after the step (p): (q) a step for enlarging or reducing one or more partial regions with a predetermined magnification (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, describes how the shape, and translation (movement of the center point), rotating can be changed, where Figure 1, shows the changing in magnification)**; (r) a step for

combing the one or more enlarged or reduced partial regions, and synthesizing at least a pat of a desired region being enlarged or reduced; (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 shows how the ellipses in combination (overlap) define the entire contour (synthesized into one approximate contour) of the region)**; (s) a step for making at least a partial contour of at least a part of the enlarged or reduced desired region as a second contour; (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 3 shows how the ellipses in combination (different size shapes) combine to define the stratified region)**;

(t) a step for extracting a region including at least a stratified region being held between the first contour and the second contour. (**Staib, page 99, left Column, section 2: Parameterization, Paragraph 2, Figure 1, Figure 2, shows the extraction of region between the first contour and second contour)**;

With respect to Claim 19/2 and 20/2, they include essentially the same limitations as Claims 1/2 and Claims 10/12 respectively as addressed above. With the expectation of a device, however, Staib further teaches a device for processing the method as recited in Claims 1/2 and Claims 10/2, respectively (**Hata, Fig.2-4, demonstrate the algorithm as performed on a cpu**)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

A. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata as applied to claim 10/1 above, and in further view of Barequet et. al (Piecewise-Linear Interpolation between Polygonal Slices, Proceedings of the tenth annual symposium on Computational geometry, Stony Brook, New York, 1994, pages 93 – 102. herein after Barequet).

As to Claim 16/1, Hata teaches the region extraction method according to claim 10/1. However, Hata is silent to in the case there is a plurality of images, wherein the following steps are included after tile step (k): (u) a step for changing the image and repeating the steps (a).about.(k) at least twice; (v) a step for synthesizing 3-dimensional regions using the extraction region on each of the images.

Barequet specifically discloses, in the case there is a plurality of images, **(Barequet, Section 2, paragraph 1, lines 1-5, where parallel planar slices are read as images)**, (v) a step for synthesizing 3-dimensional regions using the extraction region on each of the images. **(Barequet, Section 2, 3. Reconstructing the surface, lines 1-4, where examiner interprets stitching contour portions for surface**

reconstruction as synthesizing 3-dimensional regions as also interprets contour portion as extracted region).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Barequet with the teachings Hata for improved contour estimation by avoiding “the introduction of counter-intuitive bridges between contours.” **(Barequet, abstract, lines 16-18).**

As to claim 17/1, the combination of Hata discloses the method according to claim 16/1, further disclosing, in the case that the plurality of images are tomographic images being mutually different slices, **(Barequet, Section 2, lines 1-5, because the slices are parallel they are mutually different)**, wherein the following step is included between the steps (u) and (v): (w) a step for obtaining the first contour, **(Barequet, Section 2, lines 1-5, where the first slice in the pair with a polygonal contour is read as a “first contour”)**, the second contour and the stratified region, of the region where the first contour was not able to be obtained, **(Barequet, Section 2, lines 1-5, where the second slice in the pair with a polygonal contour is read as a “second contour” and the area between the pair of slices is read as the stratified region, further both the second contour and the stratified region are where the first contour was not able to be obtained since they are parallel to the first contour)**, based on the first contour in the slice of which the first contour was able to be obtained. **(Barequet, Section 2, 3. Reconstructing the surface, lines 1-4, the stratified region**

depends on the reconstruction between the first and second contour is constrained to be parallel to the first contour so they are both based on the first contour).

As to claim 18/1, the combination of Hata and Barequet discloses the method according to claim 16/1, further disclosing, in the case that the plurality of images are the tomographic images being mutually different slices, **(Barequet, Section 2, lines 1-5, because the slices are parallel they are mutually different)**, wherein the following step is included between the steps (u) and (v): (x) a step for obtaining the stratified region of the region where the stratified region was not obtained, **(Barequet, Section 1, paragraph 15, lines 3-6, the band is a stratified region where one had not been obtained)**, based on the stratified region in the slice of which the stratified region was obtained. **(Barequet, Section 1, paragraph 15, lines 6-11, the original contours is interpreted by the examiner to be where a stratified region was obtained).**

B. Claims 16-18 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Staib as applied to claim 10/2 above, and in further view of Barequet et. al (Piecewise-Linear Interpolation between Polygonal Slices, Proceedings of the tenth annual symposium on Computational geometry, Stony Brook, New York, 1994, pages 93 – 102. herein after Barequet).

As to Claim 16/2, **Staib** teaches the region extraction method according to claim 10/2. However, Hata is silent to in the case there is a plurality of images, wherein the following steps are included after tile step (k): (u) a step for changing the image and repeating the steps (a).about.(k) at least twice; (v) a step for synthesizing 3-dimensional regions using the extraction region on each of the images.

Barequet specifically discloses, in the case there is a plurality of images, **(Barequet, Section 2, paragraph 1, lines 1-5, where parallel planar slices are read as images)**, (v) a step for synthesizing 3-dimensional regions using the extraction region on each of the images. **(Barequet, Section 2, 3. Reconstructing the surface, lines 1-4, where examiner interprets stitching contour portions for surface reconstruction as synthesizing 3-dimensional regions as also interprets contour portion as extracted region)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Barequet with the teachings Hata for improved contour estimation by avoiding “the introduction of counter-intuitive bridges between contours.” **(Barequet, abstract, lines 16-18).**

As to claim 17/2, the combination of Staib and Barequet discloses the method according to claim 16/2, further disclosing, in the case that the plurality of images are tomographic images being mutually different slices, **(Barequet, Section 2, lines 1-5, because the slices are parallel they are mutually different)**, wherein the following

step is included between the steps (u) and (v): (w) a step for obtaining the first contour, **(Barequet, Section 2, lines 1-5, where the first slice in the pair with a polygonal contour is read as a "first contour"),** the second contour and the stratified region, of the region where the first contour was not able to be obtained, **(Barequet, Section 2, lines 1-5, where the second slice in the pair with a polygonal contour is read as a "second contour" and the area between the pair of slices is read as the stratified region, further both the second contour and the stratified region are where the first contour was not able to be obtained since they are parallel to the first contour),** based on the first contour in the slice of which the first contour was able to be obtained. **(Barequet, Section 2, 3. Reconstructing the surface, lines 1-4, the stratified region depends on the reconstruction between the first and second contour is constrained to be parallel to the first contour so they are both based on the first contour).**

As to claim 18/2, the combination of Staib and Barequet discloses the method according to claim 16/2, further disclosing, in the case that the plurality of images are the tomographic images being mutually different slices, **(Barequet, Section 2, lines 1-5, because the slices are parallel they are mutually different)**, wherein the following step is included between the steps (u) and (v): (x) a step for obtaining the stratified region of the region where the stratified region was not obtained, **(Barequet, Section 1, paragraph 15, lines 3-6, the band is a stratified region where one had not been obtained)**, based on the stratified region in the slice of which the stratified region was

obtained. **(Barequet, Section 1, paragraph 15, lines 6-11, the original contours is interpreted by the examiner to be where a stratified region was obtained).**

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Examiner suggests applicant to review each of the cited reference since each of the prior art cited below currently anticipates the independent claims.

Staib et al. (Boundary Finding with Parametrically Deformable Models, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 14, No. 11, November 1992) discloses a method for segmenting the boundary using a parametric model based on the elliptic Fourier decomposition of the boundary, please refer to Figure 1 and the text which describes the use of multiple geometric shapes (ellipses) being used to define partial contours of the boundary of the region of interest.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Heidemann whose telephone number is (571)-270-5173. The examiner can normally be reached on Monday - Thursday/7:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Heidemann/ 03/18/2010
Examiner, Art Unit 2624

/Andrew W Johns/
Primary Examiner, Art Unit 2624